

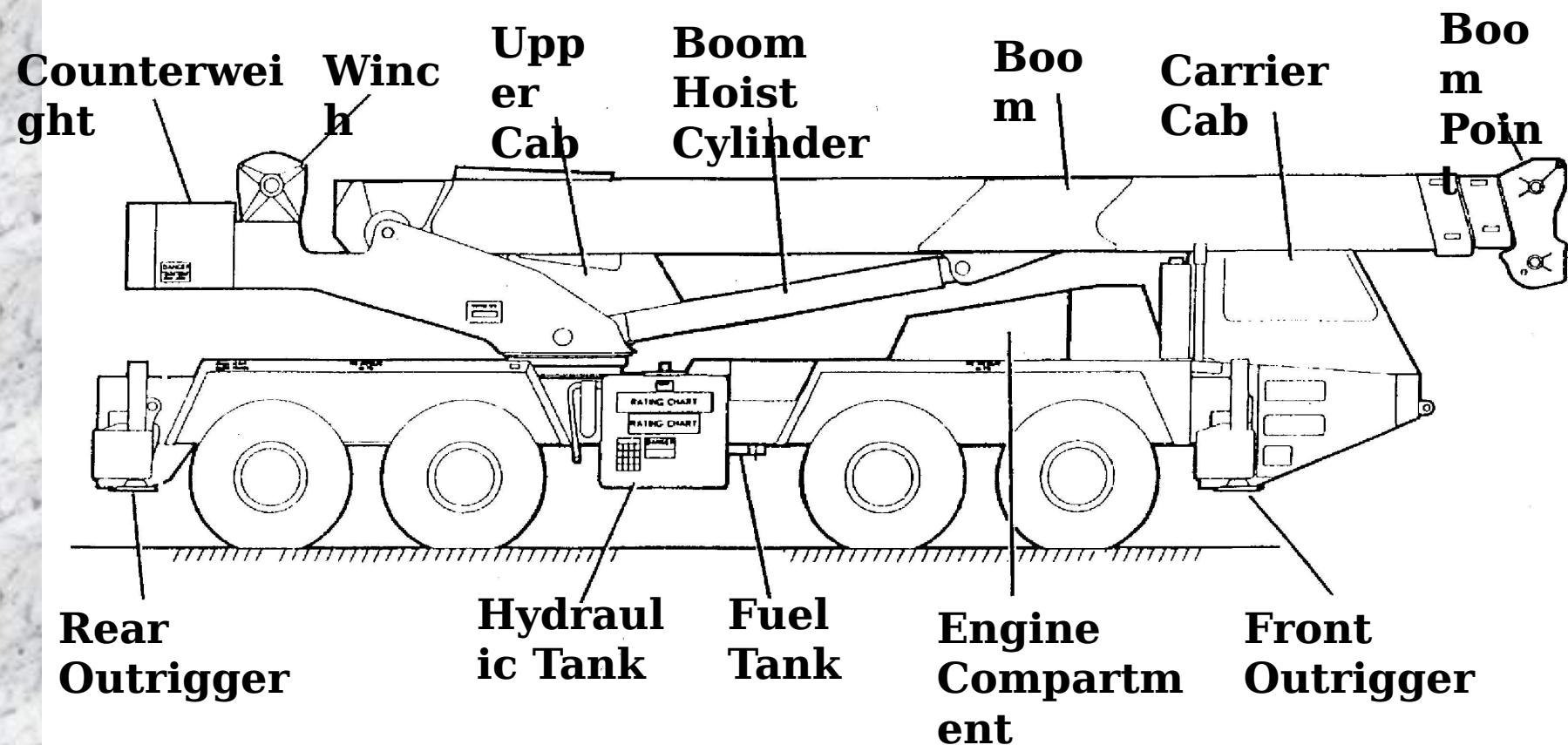
HSHMC 25 Ton

■ GySgt Brubaker

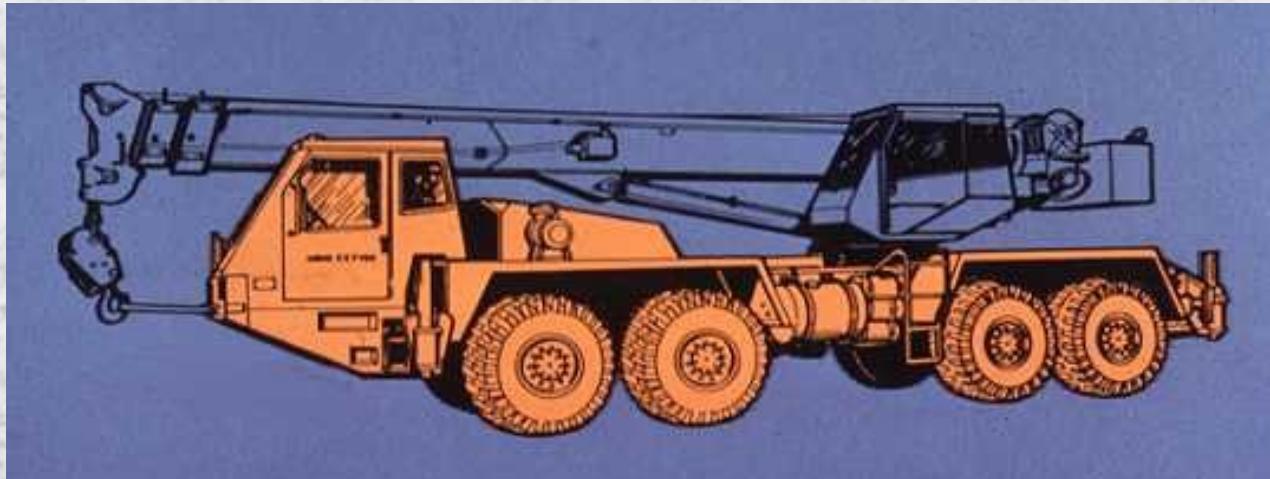
HSHMC 25 Ton



HSHMC 25 Ton Nomenclature



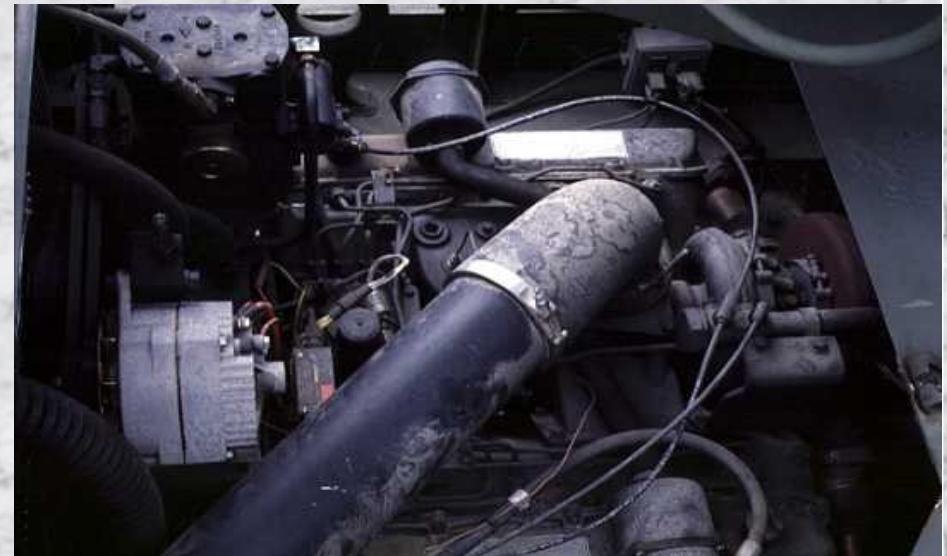
HSHMC 25 Ton



- **25 Ton rough terrain crane**
- **Loaded extra axles and special tires**
- **Operates at a relatively high speed.**

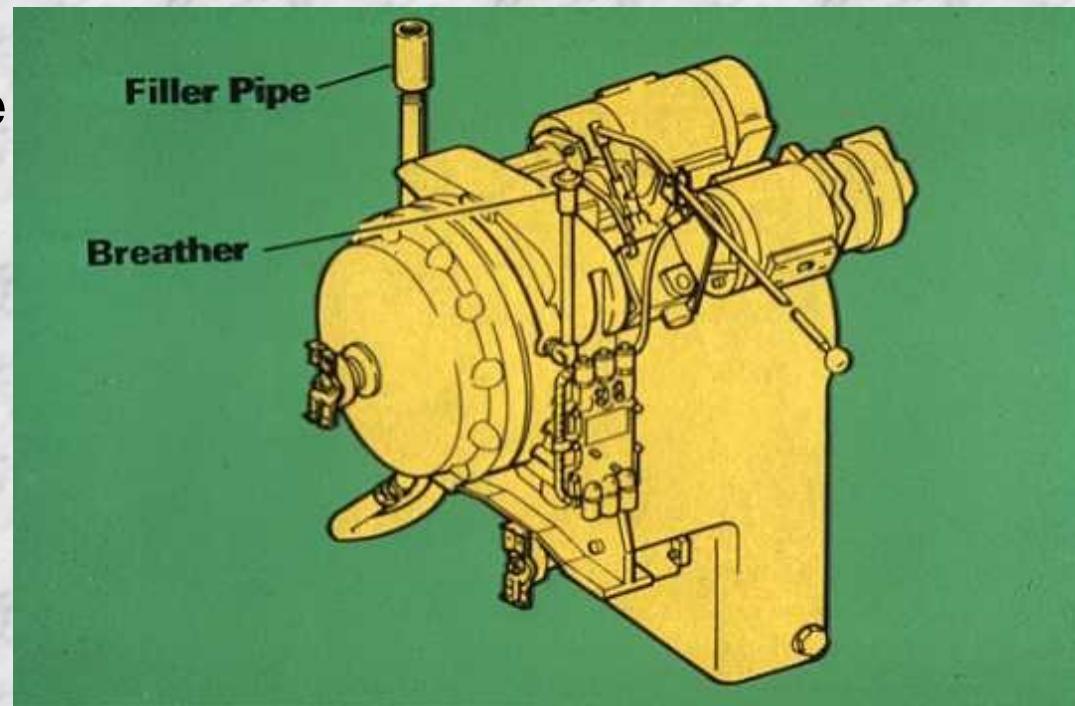
HSHMC 25 Ton Engine

- **Diesel powered,
3408 V8 Cat Turbo
Engine**
- **Engine oil pressure
at operating speeds:**
 - Lower cab 30 - 65 psi
 - Upper cab 30 - 60 psi
- **Normal water temp
190 degrees**



HSHMC 25 Ton Transmission

- Full power shift transmission
- All wheel drive capability
- Limited slip differentials



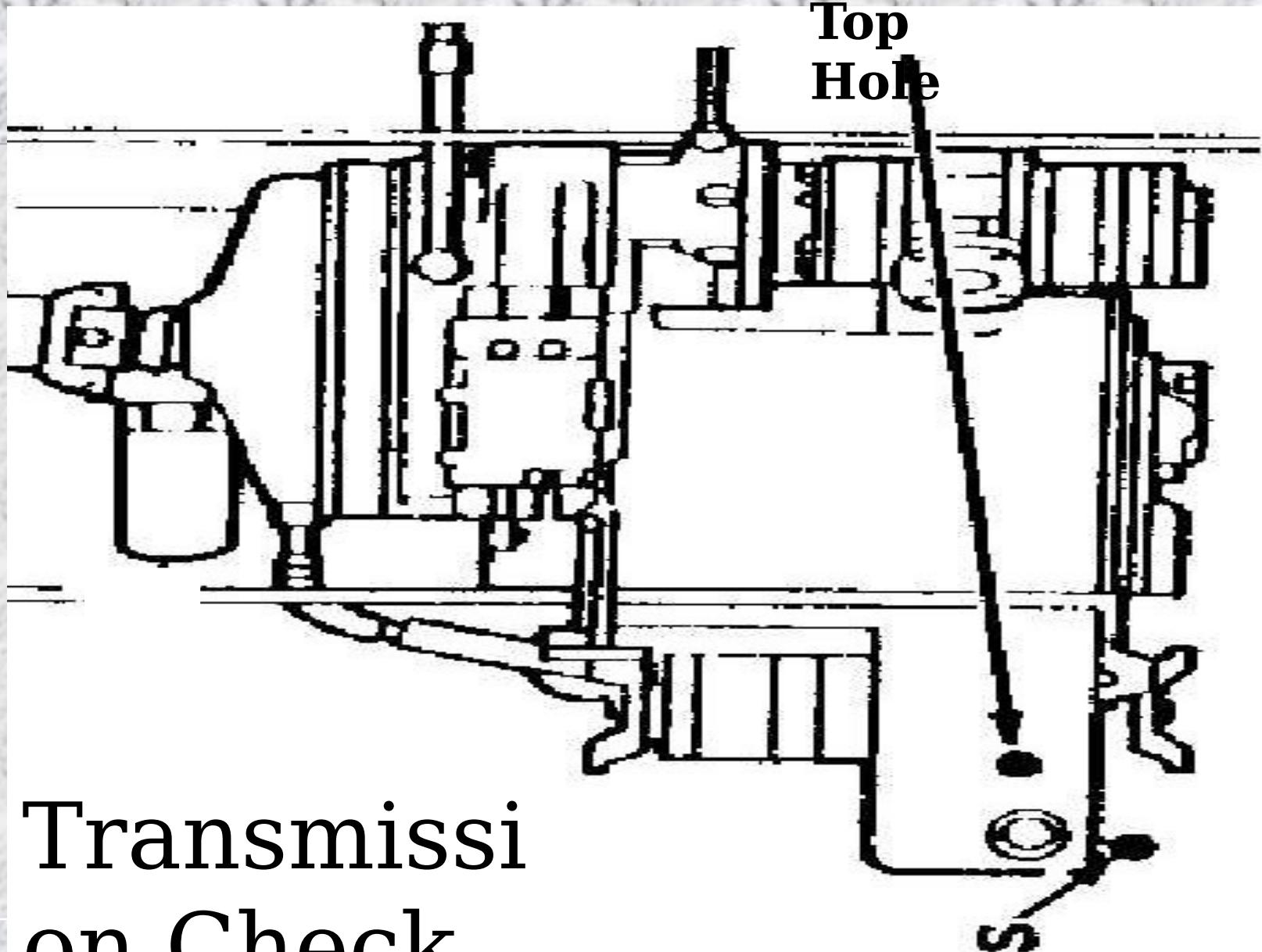
HSHMC 25 Ton Transmission



- **4 speeds forward**
- **2 speeds reverse**
- **High and low range**
- **Transmission and torque converter function together**
- **Differential lockout for individual axle and inter axle differential**

HSHMC 25 Ton Transmission

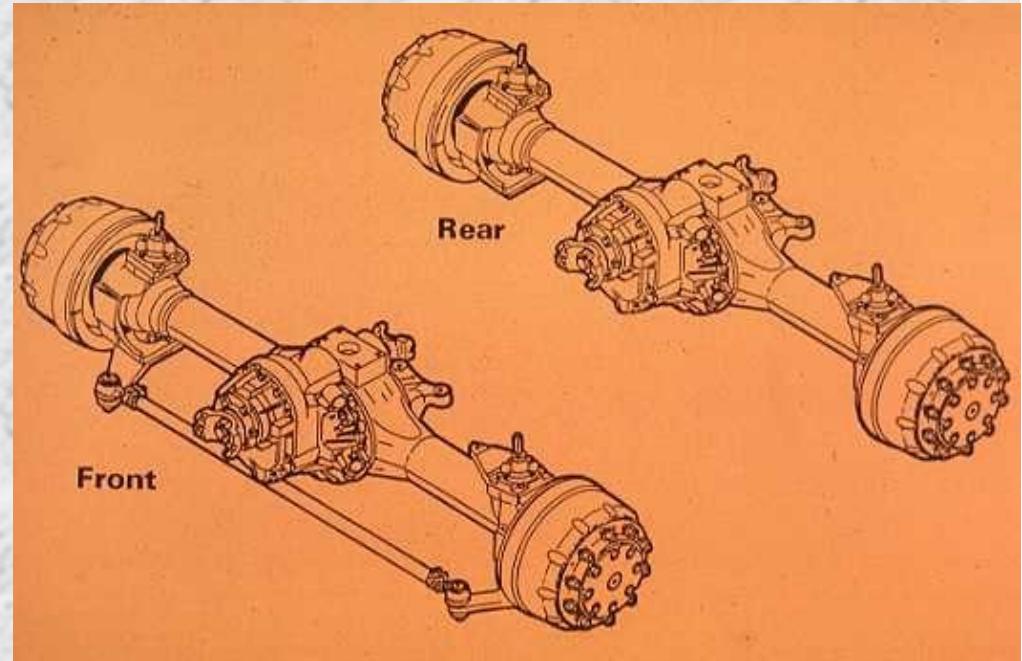
- Check fluid while:
 - Engine running
 - Transmission in neutral
- Top hole
 - Hot fluid
- Bottom hole
 - Cold fluid



Transmissi
on Check

HSHMC 25 Ton Axles

- Axles oscillate up and down
- 8 wheel drive
- Fords 60"



HSHMC 25 Ton Fuel



- Fuel capacity, 70 gallons
- 200 miles at max speed

HSHMC 25 Ton Electrical



- **24 volt, direct current, negative ground, electrical system**
- **Utilizes 4 batteries**

HSHMC 25 Ton

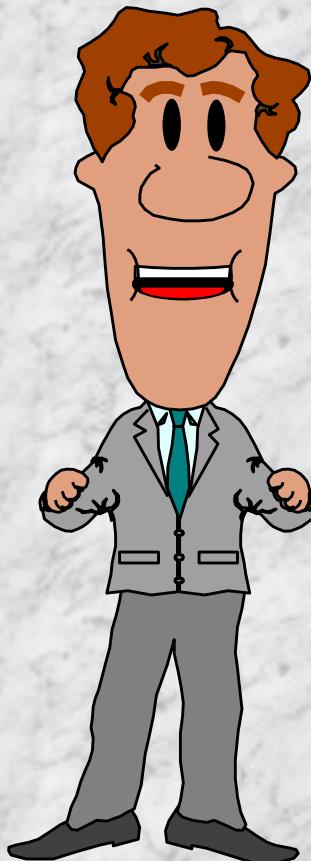
- **Top speed, 45 MPH**
- **Air over hydraulic brakes**
- **Negotiate 20% side slope
due to low center of
gravity**
- **Driven from upper/lower
cab**
- **Upper cab max speed 15
mph**

HSHMC 25 Ton Boom



- 3 section box type
- Fully extended, 80 feet
- Fully retracted, 32 feet

HSHMC 25 Ton Boom



- **Cradle equipped with a safety device**
- **Locks axles when the boom is lifted from cradle**
- **Boom topping 75 degrees.**

HSHMC 25 Ton Boom

■ Caution

- Raise boom higher than cab before swinging over front of crane
- Must be above 20 degrees

HSHMC 25 Ton Winch



- **Specially designed 2 speed winch**
- **30,000 plus, low speed.**
- **30,000 less and clamshell, high range**

HSHMC 25 Ton Winch

■ Caution:

- **Do not select winch speed while winch is in motion.**
- **Damage to winch will result.**



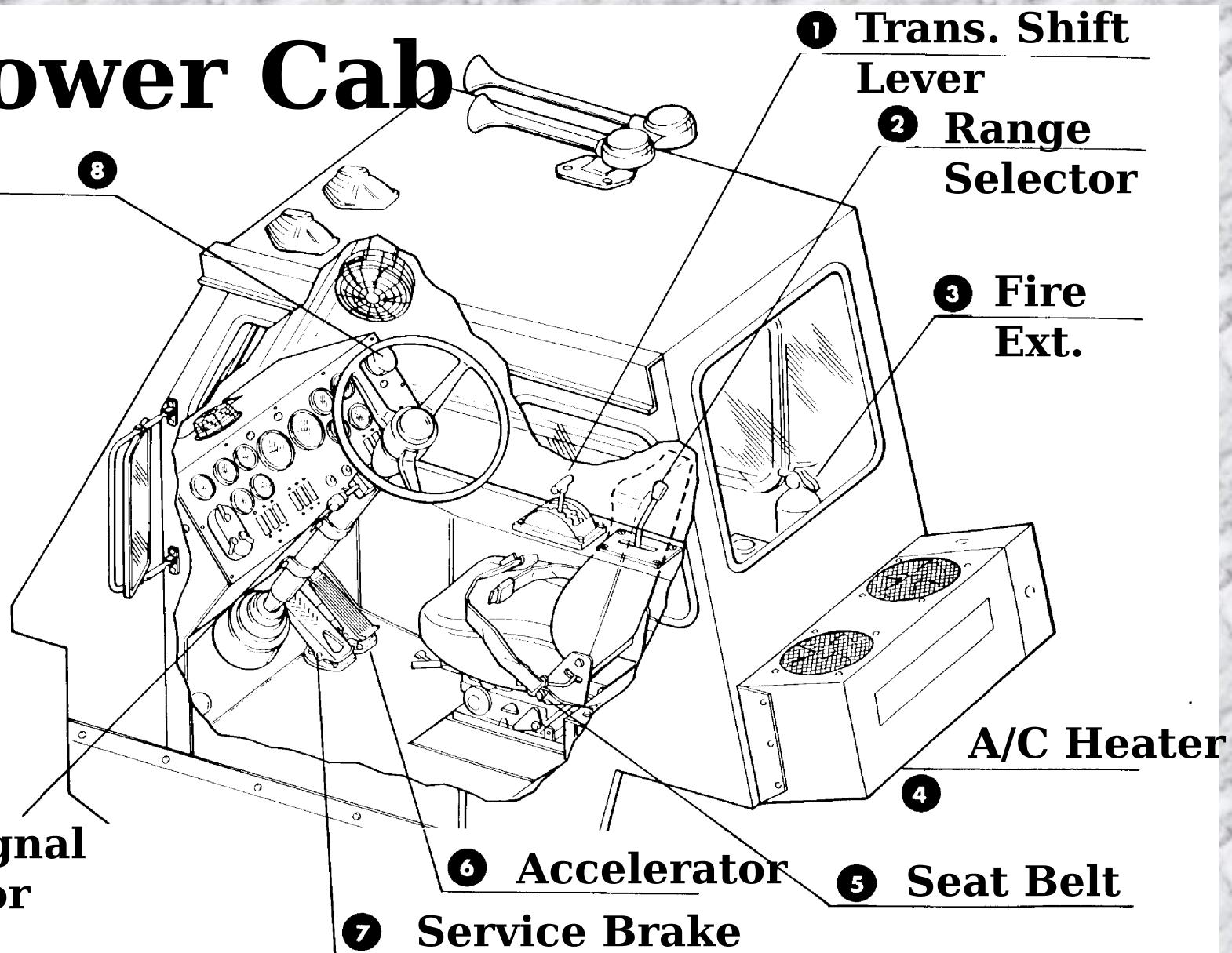
HSHMC 25 Ton



- Front wheel steering only
- Tire pressure 65 psi

Lower Cab

STE-
ICE



Turn Signal
Indicator

Hazards

Hi/Lo Beam

HSHMC 25 Ton Lower Cab

■ Transmission shift lever

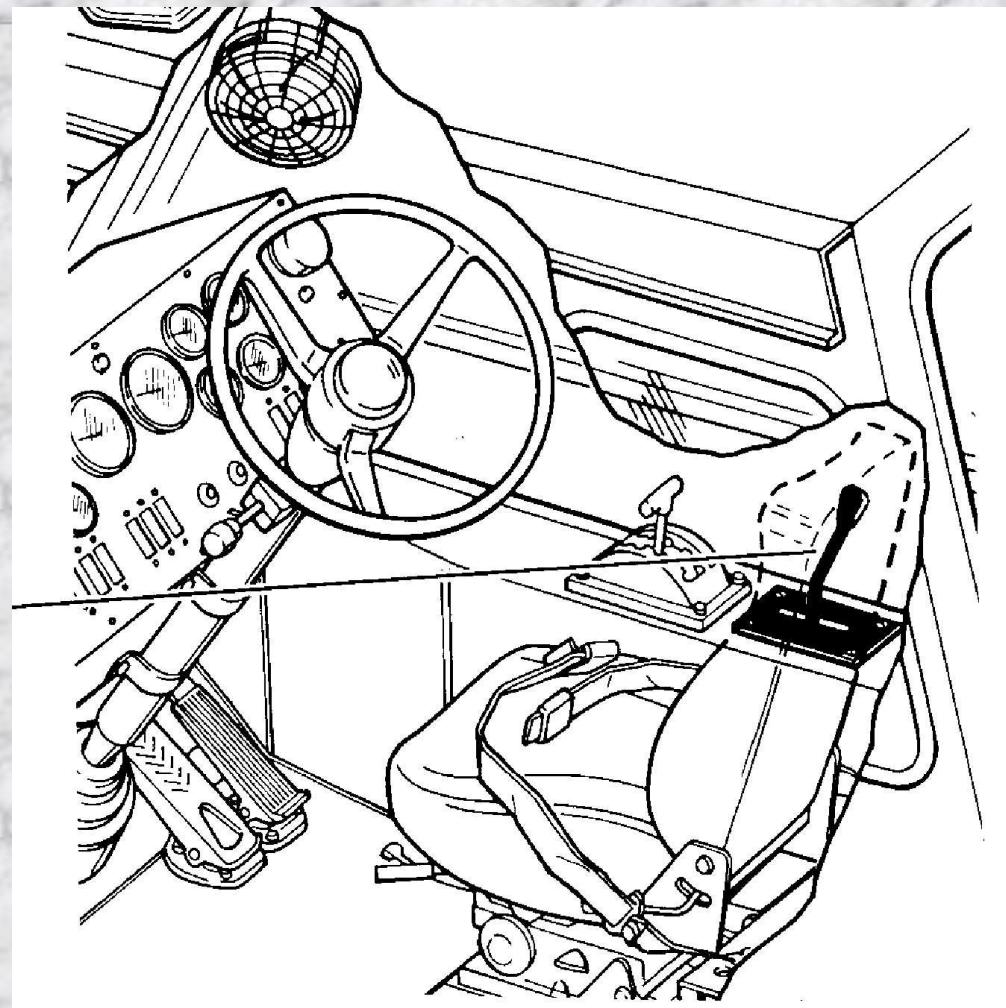
- 4 speed

■ Range selector lever

- High, Neutral, Low
- Low range for upper cab
- Low range for 8 wheel drive

HSHMC 25 Ton Lower Cab

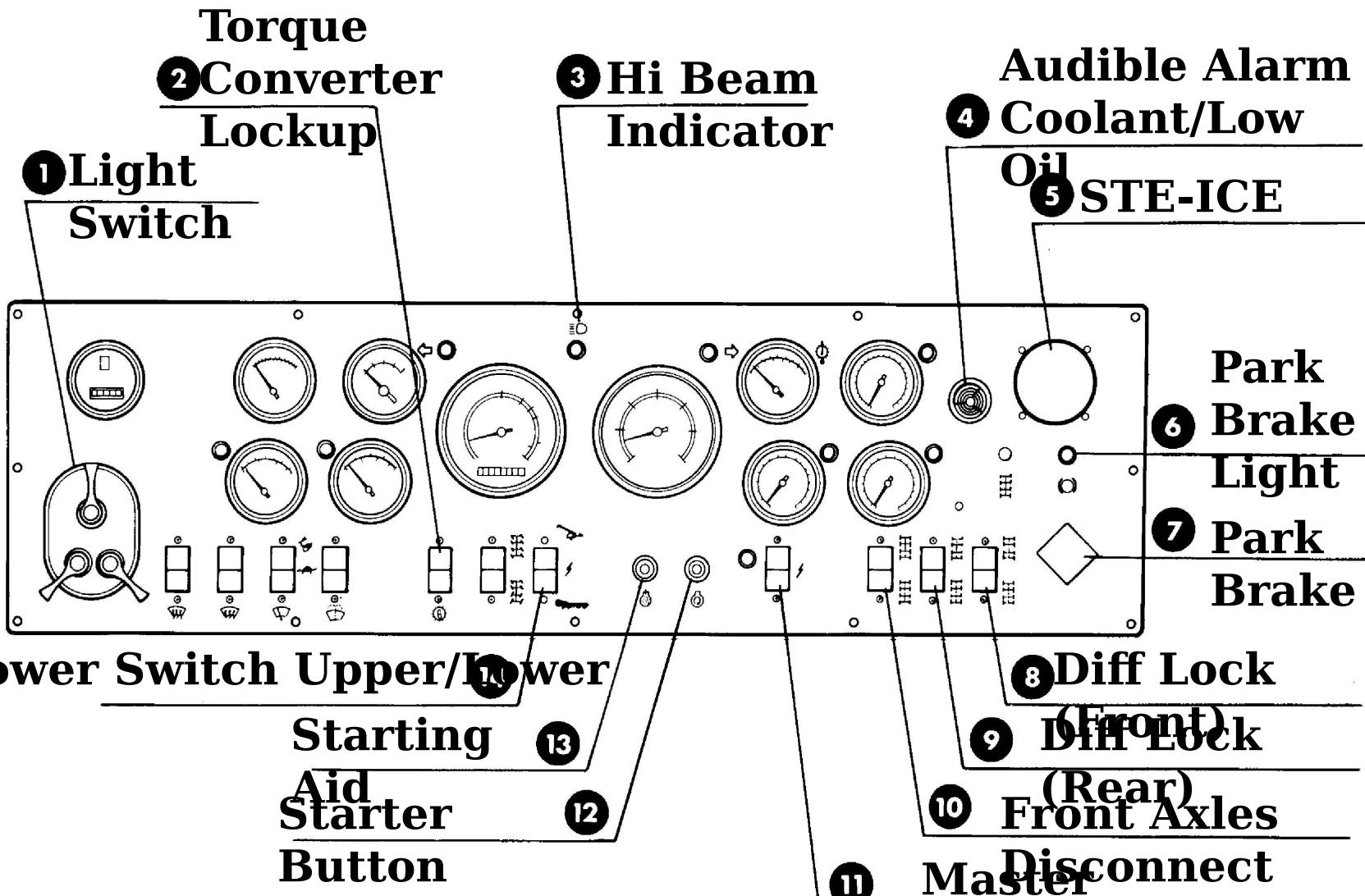
- **Hi/Lo selector in Hi position -**
 - Front axle drive
 - Differential lock
 - Outriggers
 - Steering
 - Throttle
- **Will not operate**



HSHMC 25 Ton



■ Lower Cab Panel



Lower Cab Panel

HSHMC 25 Ton Lower Cab Panel

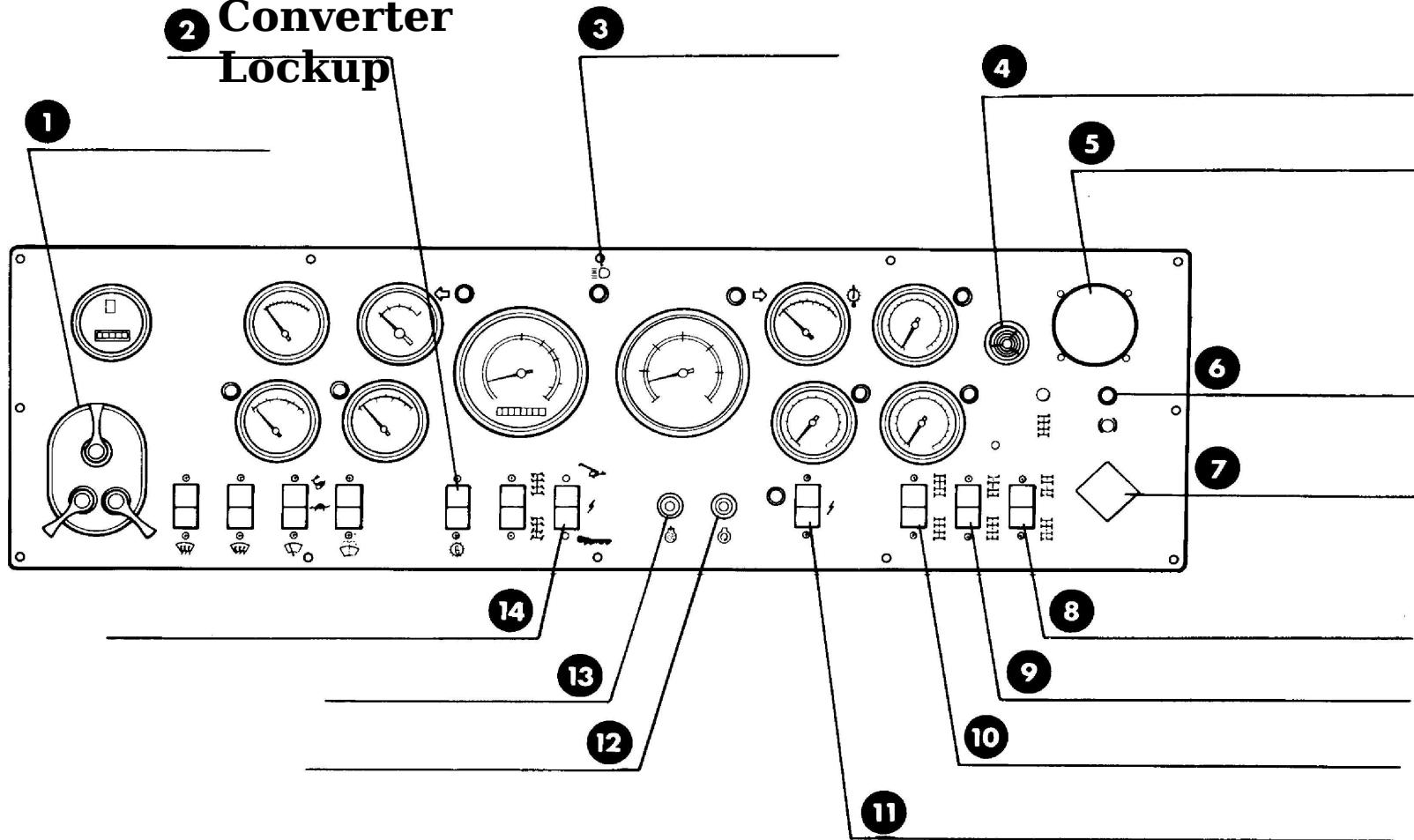
■ Torque Converter Lockup Switch

- Takes slip out of torque converter

■ Warning Buzzer

- Engine temp high
- Oil/Air pressure low
- Lights on

Torque Converter Lockup



HSHMC 25 Ton Lower Cab Panel

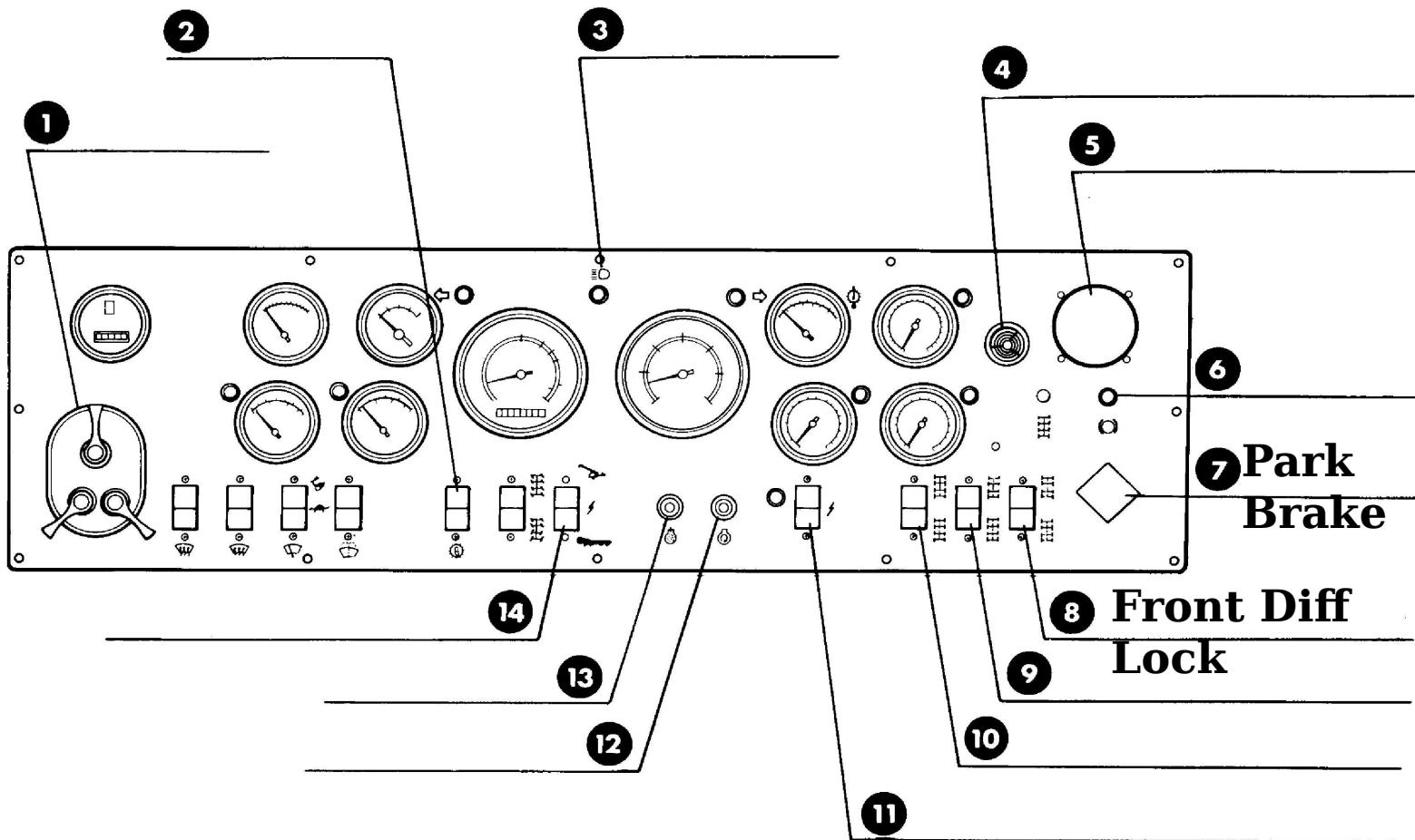
■ Park Brake Control

- **Rear brakes**
- **Below 40 psi,
automatically move to
applied position**
- **Below 60 psi, warning
light/buzzer**
- **Normal air pressure
100-120 psi**

HSHMC 25 Ton Lower Cab Panel

■ Front Axle Differential Lock

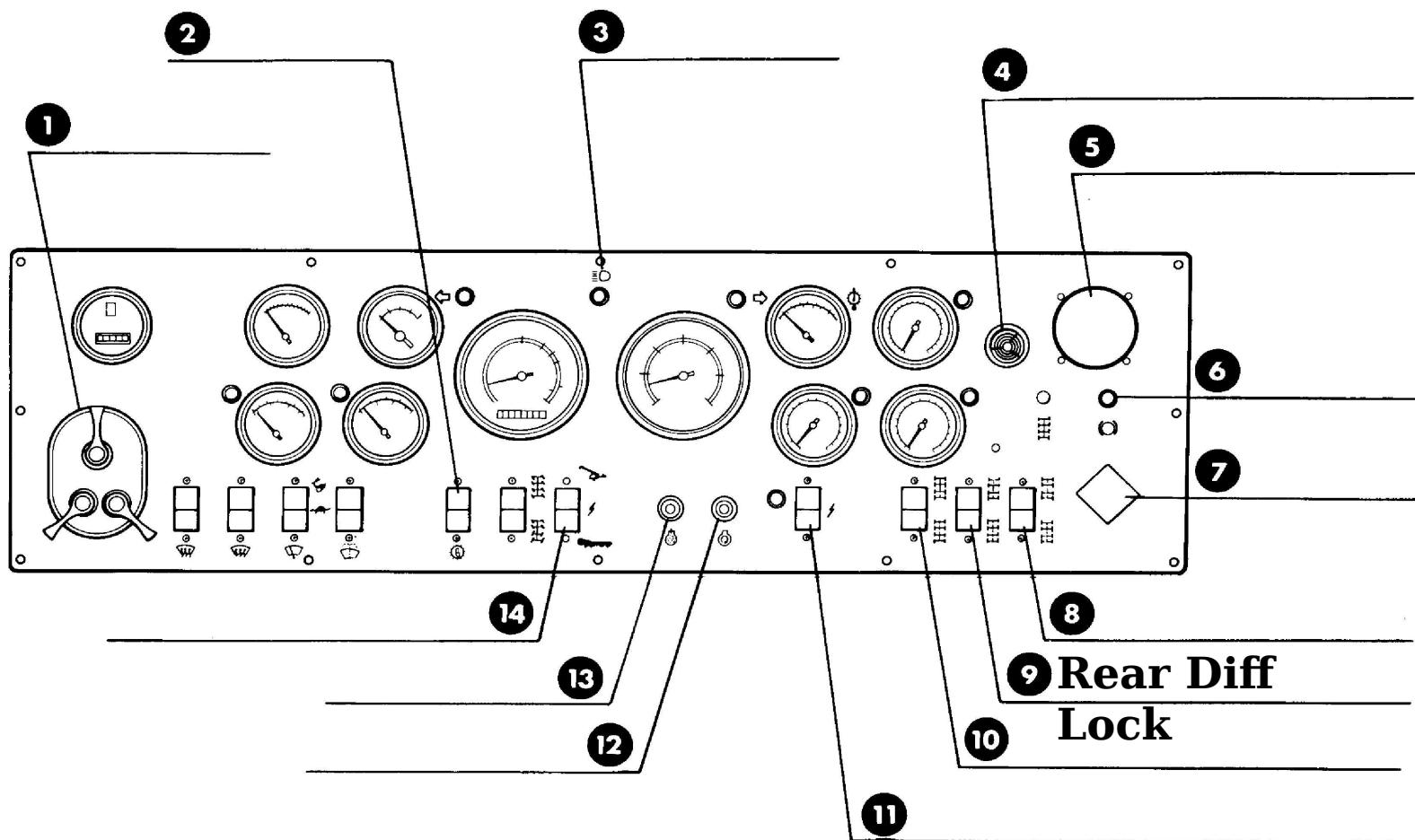
- Locks/Unlocks front axle differentials
- **MUST** select low range
- Switch spring loaded
- Complete stop before engaging



HSHMC 25 Ton Lower Cab Panel

■ Rear Axle Differential Lock

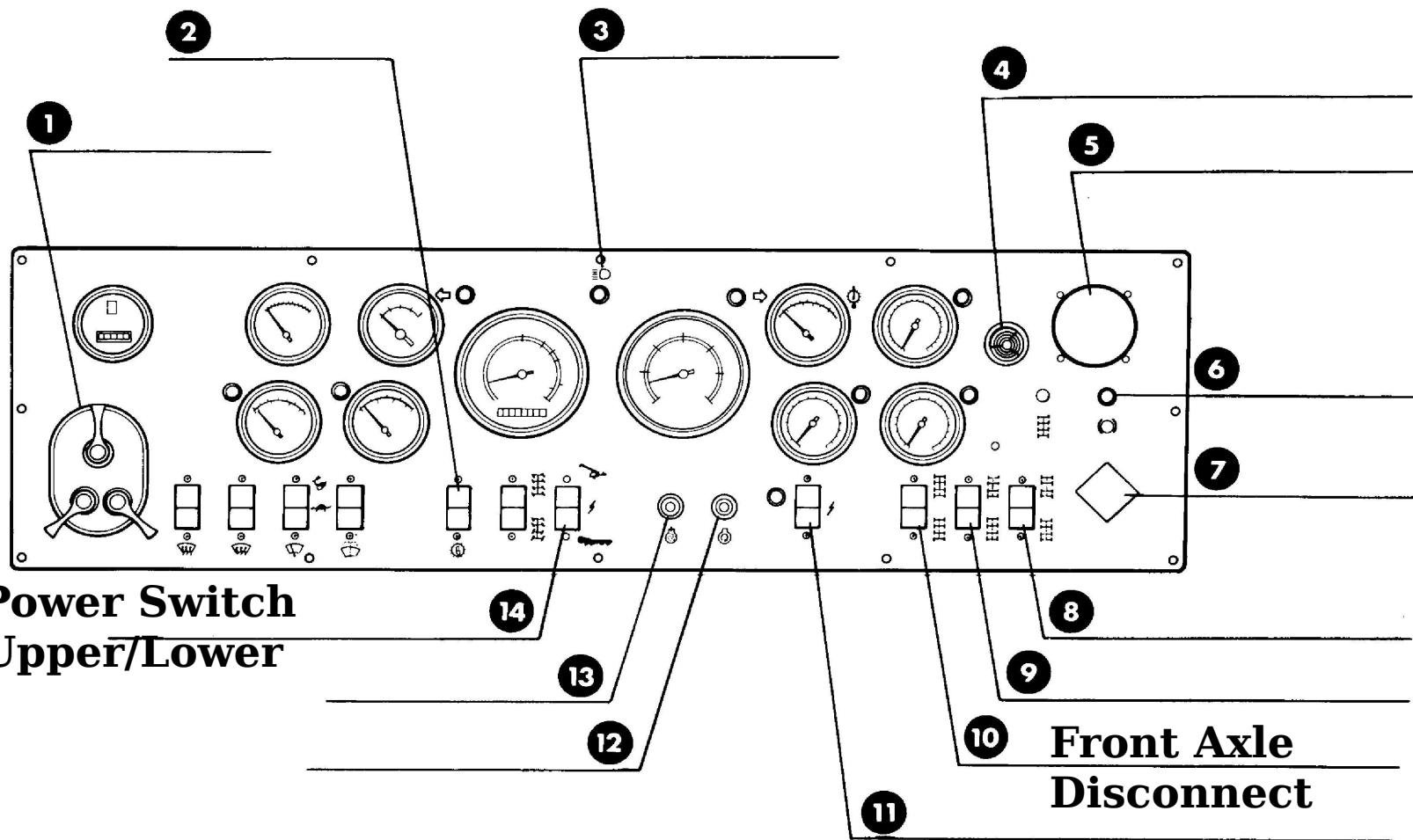
- Locks/Unlocks rear axle differentials
- Not Spring loaded
- Can leave engaged
- Top of switch, UNLOCK
- Bottom of switch, LOCK
- Complete stop before engaging



HSHMC 25 Ton Lower Cab Panel

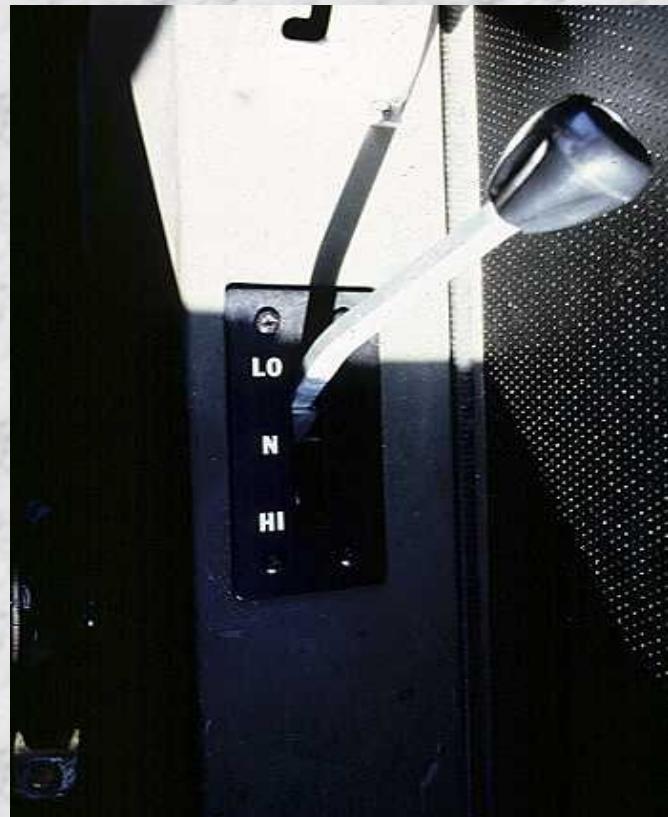
- **Front Axle Disconnect Switch**
 - 8 wheel drive

- **Upper/Lower Selector Switch**
 - Transfers power
 - **Top of switch, UPPER CAB**
 - **Bottom of switch, LOWER CAB**



HSHMC 25 Ton Lower Cab Panel

- Switching power to upper cab
- 4 steps:
 - 1) Shift transfer lever to low range
 - 2) Shut off engine



HSHMC 25 Ton

- 3) Push power switch to upper position.



HSHMC 25 Ton



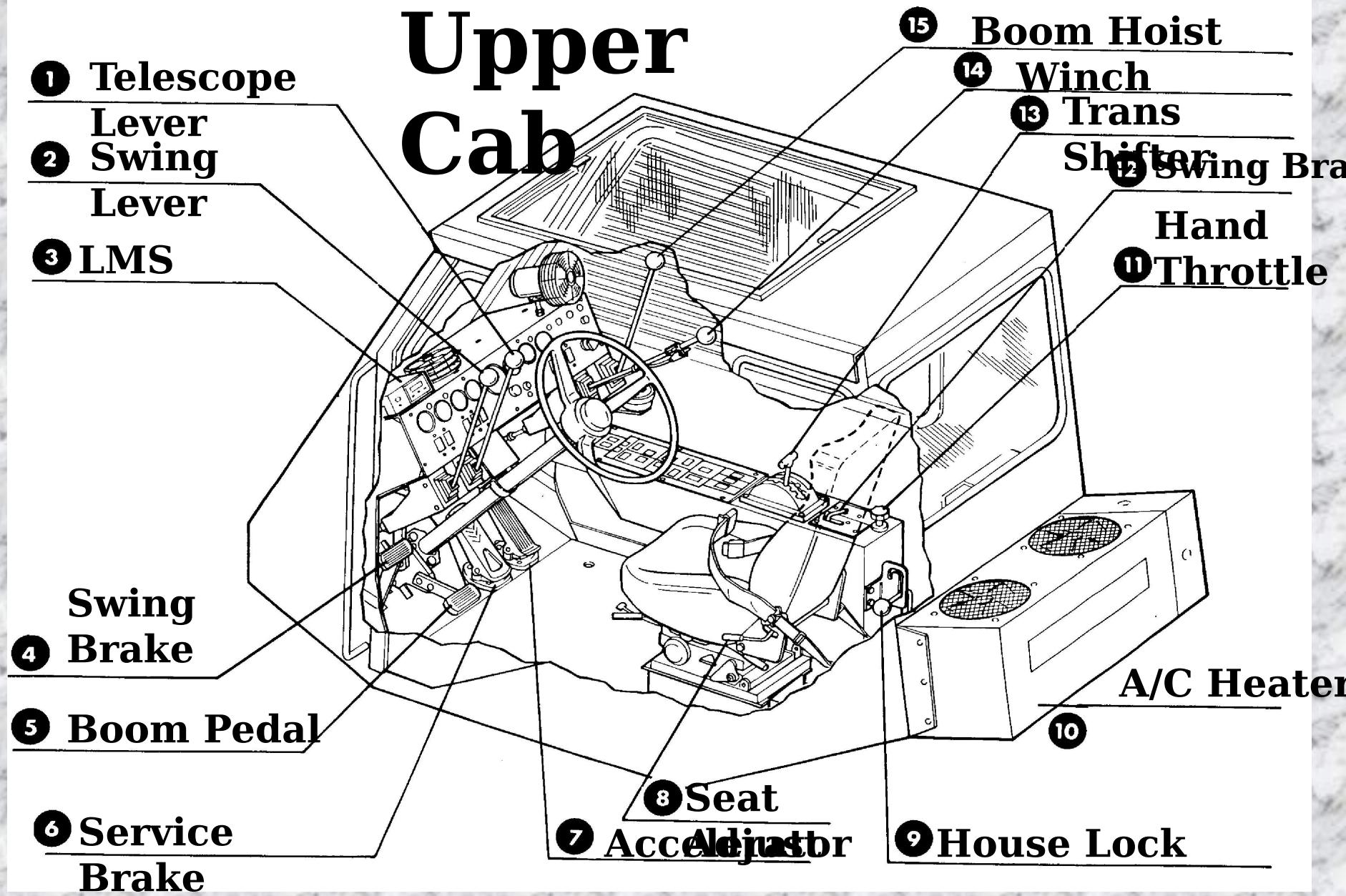
- 4) Engage hydraulic pump
 - Lever up, UPPER CAB
 - Lever down, LOWER CAB

HSHMC 25 Ton



■ Are there any questions?

Upper Cab



HSHMC 25 Ton Upper Cab

■ Positive Cab Lock

- Must be centered over front or rear to engage

■ Hand Throttle

- 1,100 to 1,500 rpm

■ Swing Lock

- Hydraulic brake

HSHMC 25 Ton Upper Cab

- Controls similar to lower cab
- Telescope Lever
 - Extends/Retracts
 - Boom extends, wire rope shortens
- Swing Brake
 - Stops/holds cab

HSHMC 25 Ton Upper Cab

- **Transmission Shift Lever**

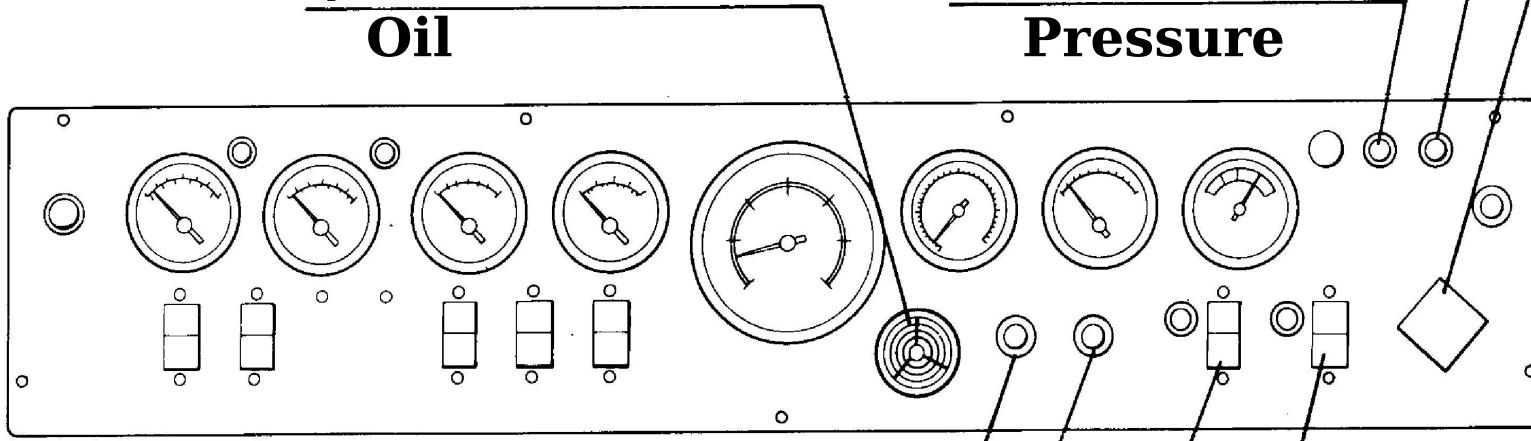
- 15 mph

- **Main Winch Lever**

- Controls winch
 - Toggle switch for clamshell

Upper Cab Panel

Audible alarm
1 Coolant/Low Oil



2 Park Brake

3 Park Brake Light
4 Low Air Pressure

5 Starting Aid

6 Starter

7 Button Master

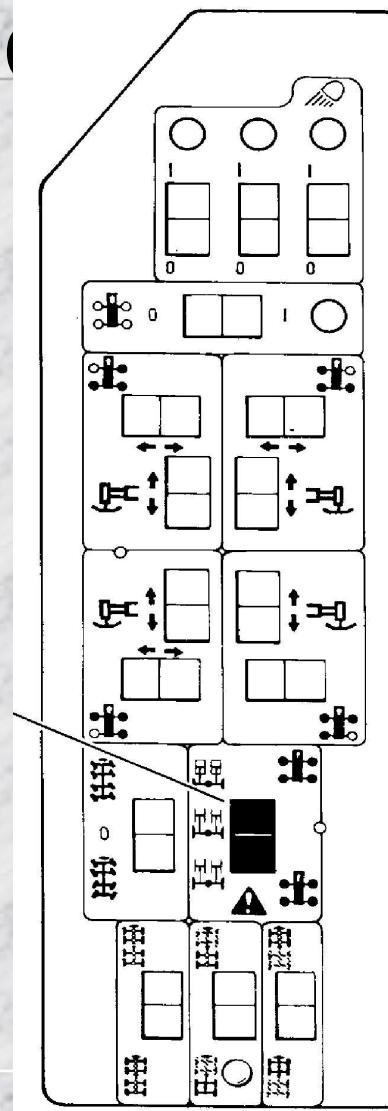
8 HYD Winch Selector

HSHMC 25 Ton Upper Cab Panel

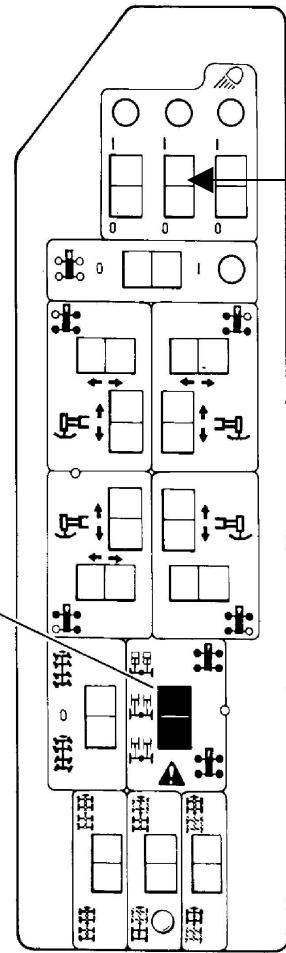
- Winch Speed Selector
- **DO NOT** switch with winch in motion
 - Damage to the winch will occur

HSHMC 25 Ton Upper Cab Side Panel

- Located to right of operator
- 3 groups

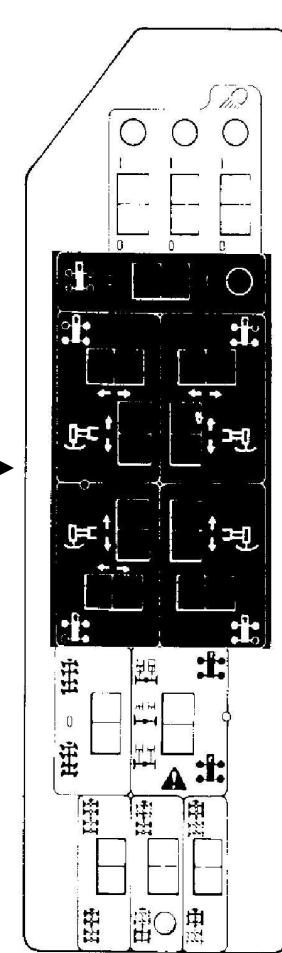


HSHMC 25 Ton Upper Cab Side Panel

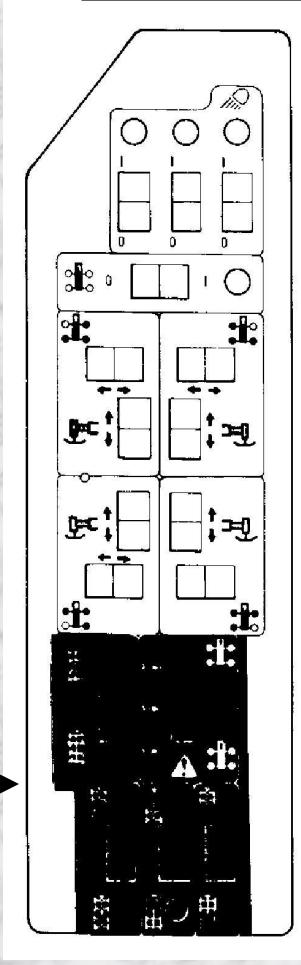


Floodlig
hts

Outrigge
rs



Axle
s



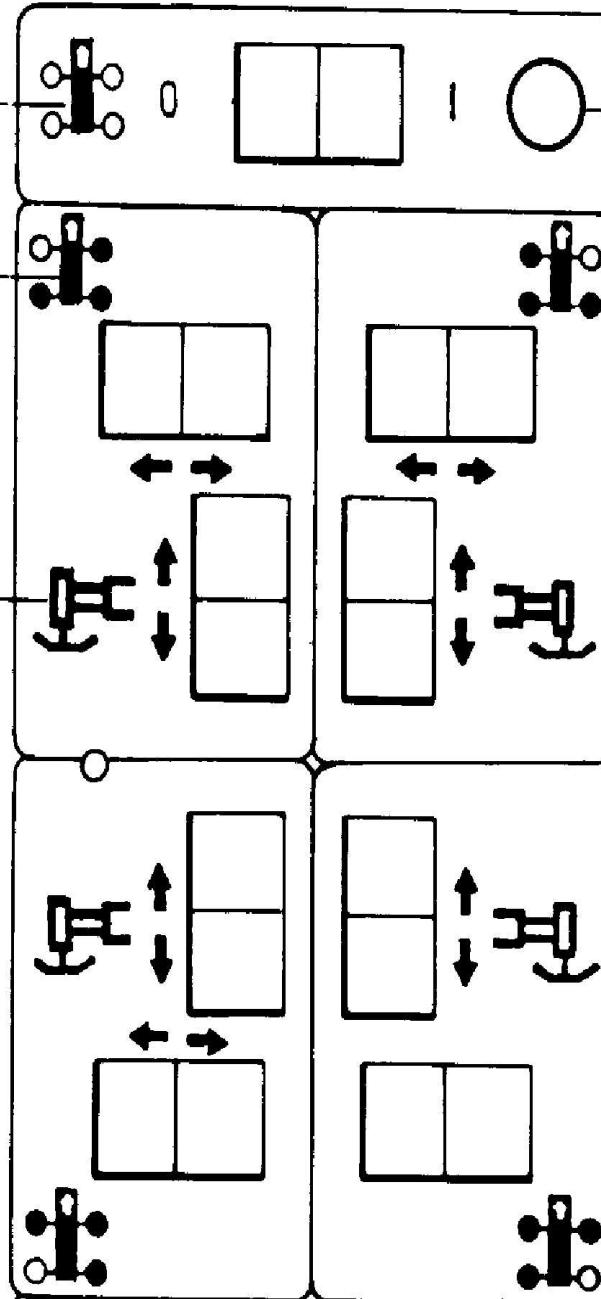
**Outrigger
Master Control**

Switch

**Outriggers
Extend**

Raise or Lower

**Outrigger
Panel**



Light

HSHMC 25 Ton Upper Cab Side Panel

■ Outriggers:

- Stick w/four circles

■ Top switch

- Outrigger master switch
- Provides power to individual outrigger switches

■ Individual outrigger switches

- Horizontal switch
- Extend/Retract
- Vertical switch
- Raise/Lower

HSHMC 25 Ton Upper Cab Side Panel

■ CAUTION

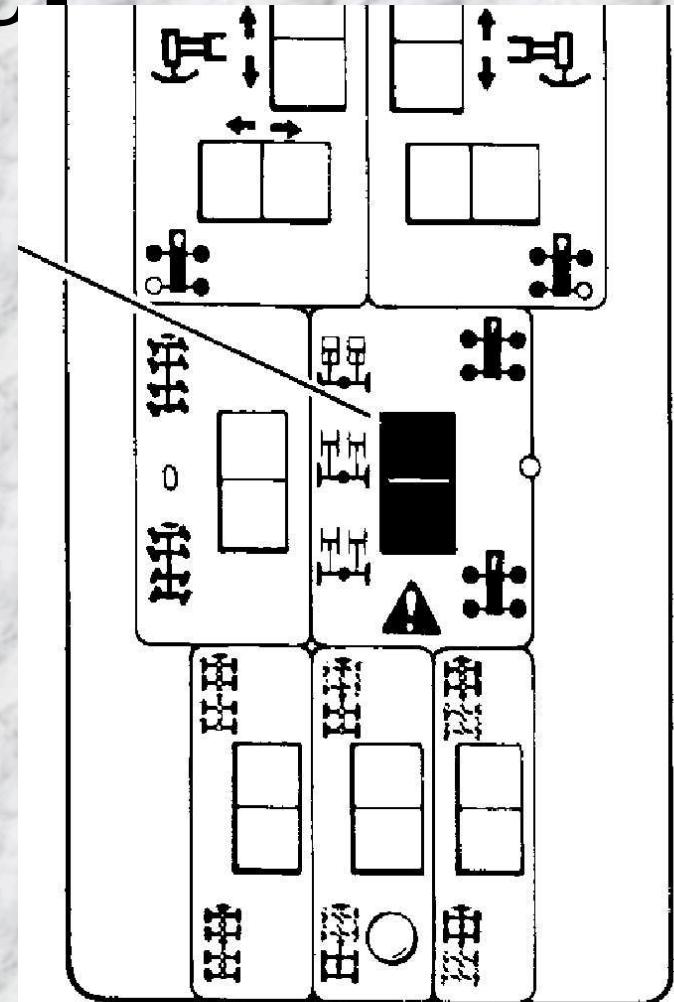
- Extend/Retract **ONE** outrigger at a time!
 - Over pressure of suspension

- Raise crane front to rear
 - Avoids stress on frame

HSHMC 25 Ton Upper Cab Side Panel

Suspension Switch

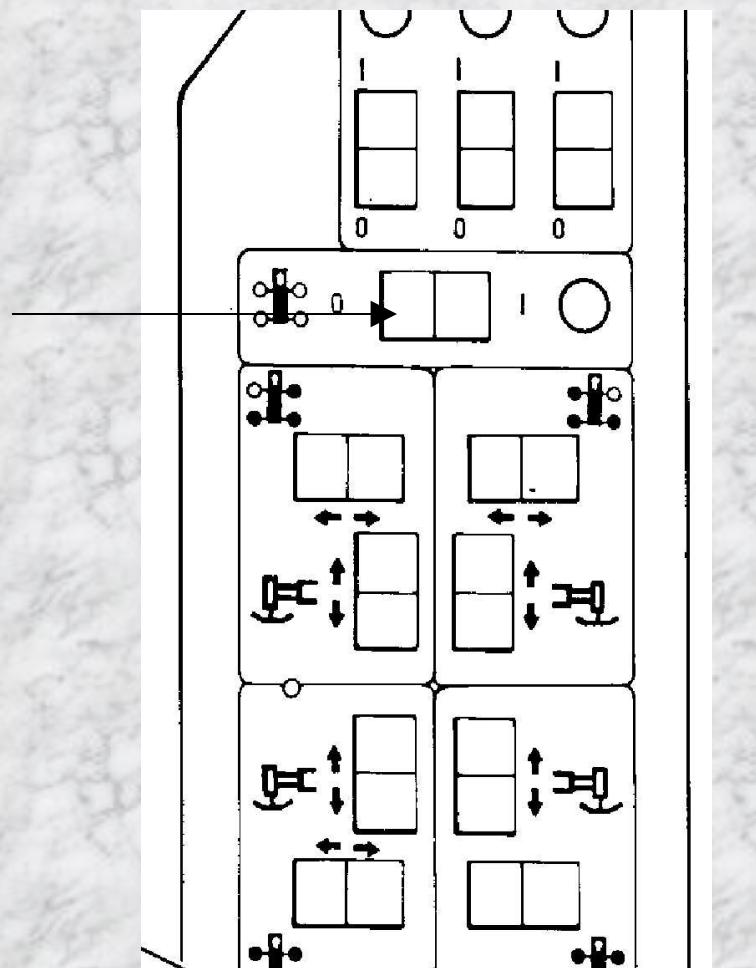
- **3 positions**
- **Top, locks**
- **Middle, unlocks**
- **Bottom, charging of system**



HSHMC 25 Ton Upper Cab Side Panel

■ Sequence of events:

- 1) Lock suspension**
- 2) Outrigger power switch**
- 3) Extend/Raise outriggers**

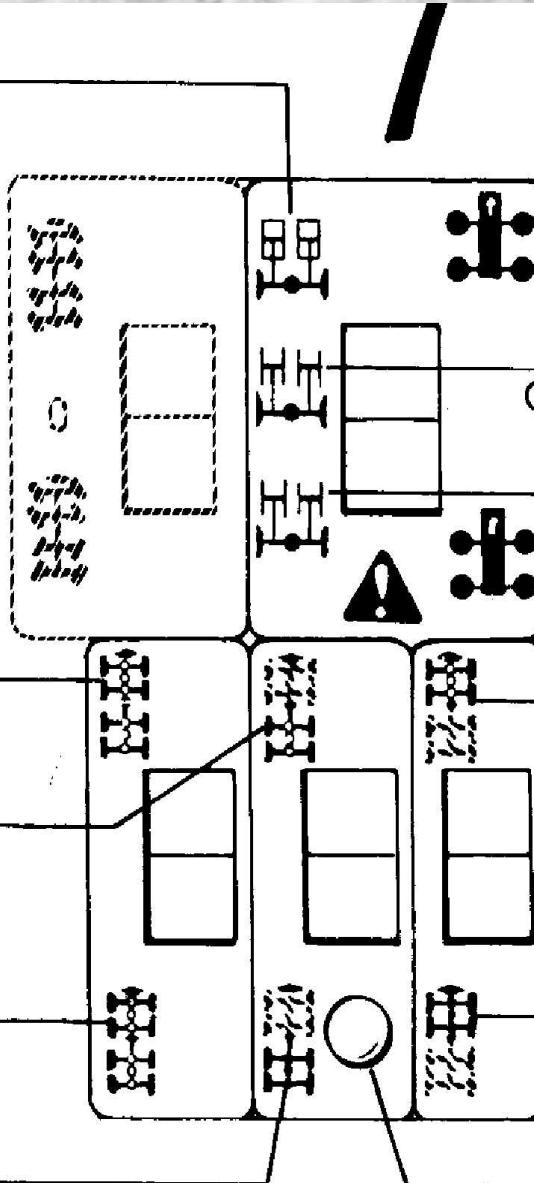


Axle Panel

**Front Axles
Engaged**

**Rear Differential
Unlocked**

**Front Axle
Disengaged**
**Rear Differential
Locked**



**Suspension
Unlocked**

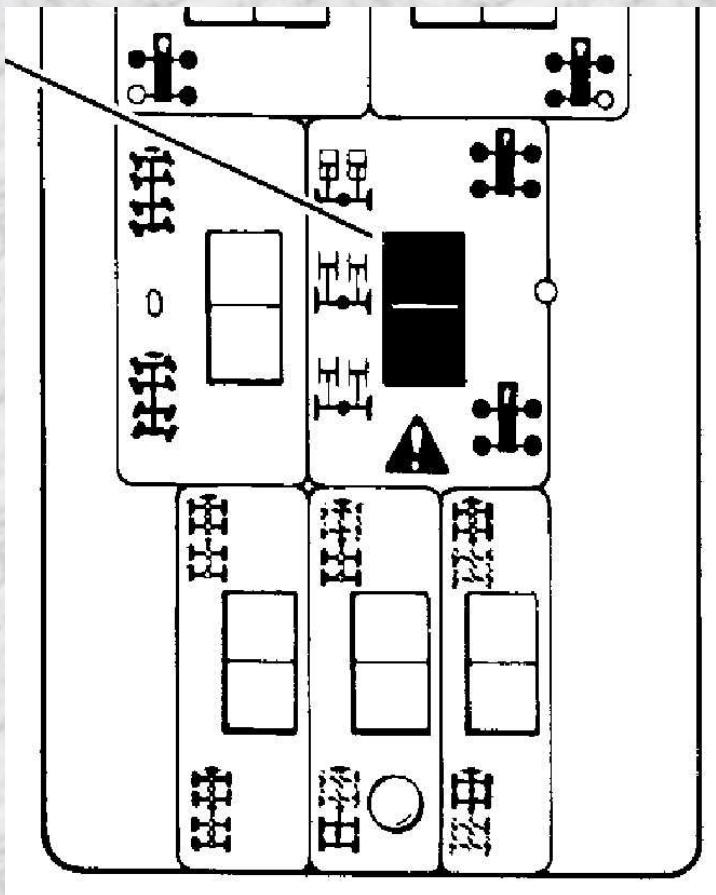
**Suspension
Charging**

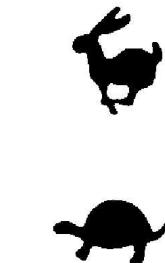
**Front
Differential
Unlocked**

**Front Differential
Locked**

**Rear Differential
Lock Indicator**

HSHMC 25 Ton Upper Cab Side Panel





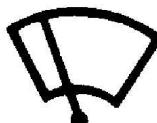
Fas t Slow **Symb ols**



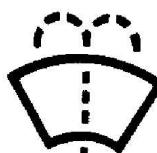
Flood
Lights



Head
Lights



Windshield
Wiper



Washer



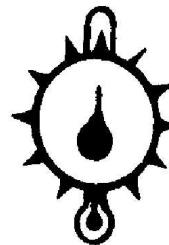
Horn



Park
Lights



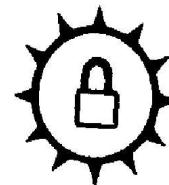
Turn
Signal



Converter
Temp



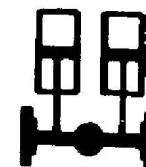
Hydro Oil
Temp



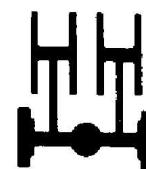
Transmission
Lock



Park Brake



Suspension
System Locked

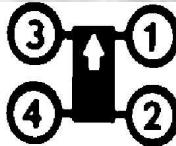


Suspension
System
Unlocked

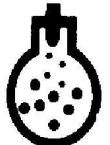
Symbol



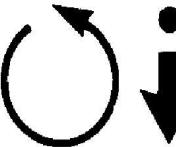
Caution **S**



Outrigger
s



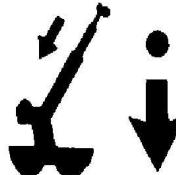
Starting Aid



Swing



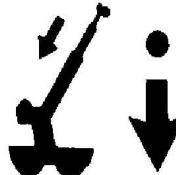
Starter



Telescope



Upper Cab



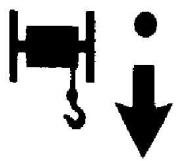
Winch



I = ON
O = OFF Master
Switch



Carrier



Boom



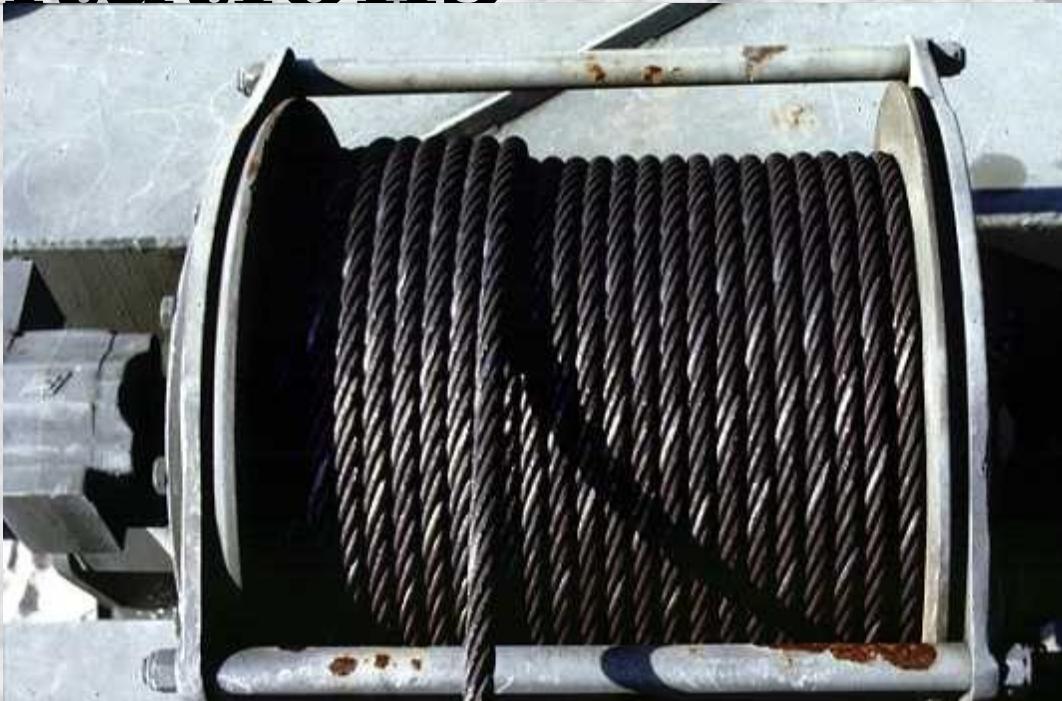
Defroster



HSHMC 25 Ton Limitations

- Limited to raising a maximum load of -
 - 25 tons
 - 16 foot work radius

HSHMC 25 Ton Limitations



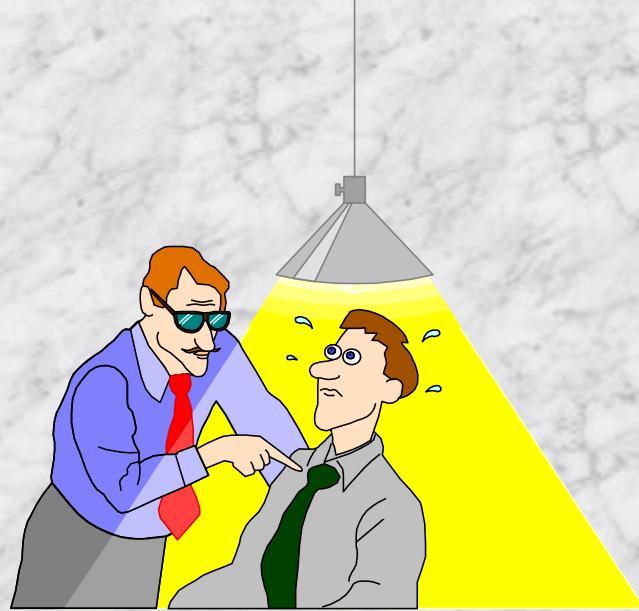
- Must contain enough 3/4" wire rope for the hook block to operate at the lowest working level.

HSHMC 25 Ton Attachments



- 3 attachments

HSHMC 25 Ton Attachments



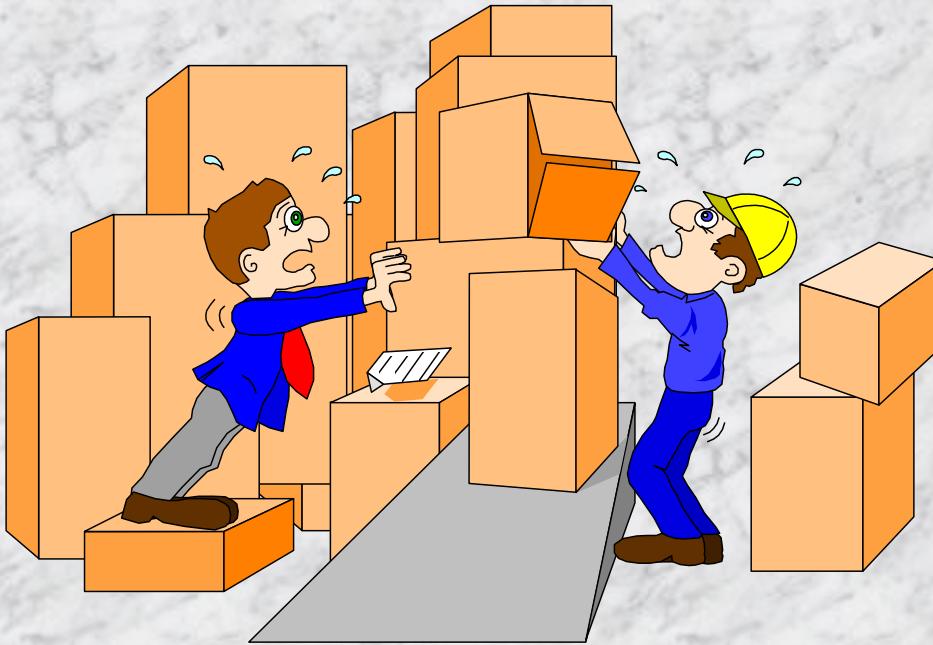
- Tools attached to upper structure that actually do the work.

HSHMC 25 Ton

- Reeved max 5 parts of line



HSHMC 25 Ton



- Pick and carry 22,000 max
- At 20 foot radius
- Straight over rear

HSHMC 25 Ton Hook Block

■ Uses:

- At, above, and below ground level**
- Constructing bridges**
- Installing or removing rotor blades or propellers**
- Loading/unloading ships and trucks**

HSHMC 25 Ton Hook Block

- Lift any load rigged with slings
- Lift any vehicle equipped with lifting eyes



HSHMC 25 Ton Clamshell

- Vertically operated attachment
- Digs loose soil at, above, and below ground level
- 1 cubic yard



HSHMC 25 Ton Clamshell

- Used for digging:
 - Foundations
 - Footings
 - Pier holes
 - Trenches
 - Cellars



HSHMC 25 Ton Clamshell

- Filling charge bins
above ground.**
- Digging action from:**
 - Weight of bucket**
 - Closing of the jaws**

HSHMC 25 Ton Clamshell



- Accurate dumping control for loading trucks, scrapers, and feeders.

HSHMC 25 Ton Clamshell

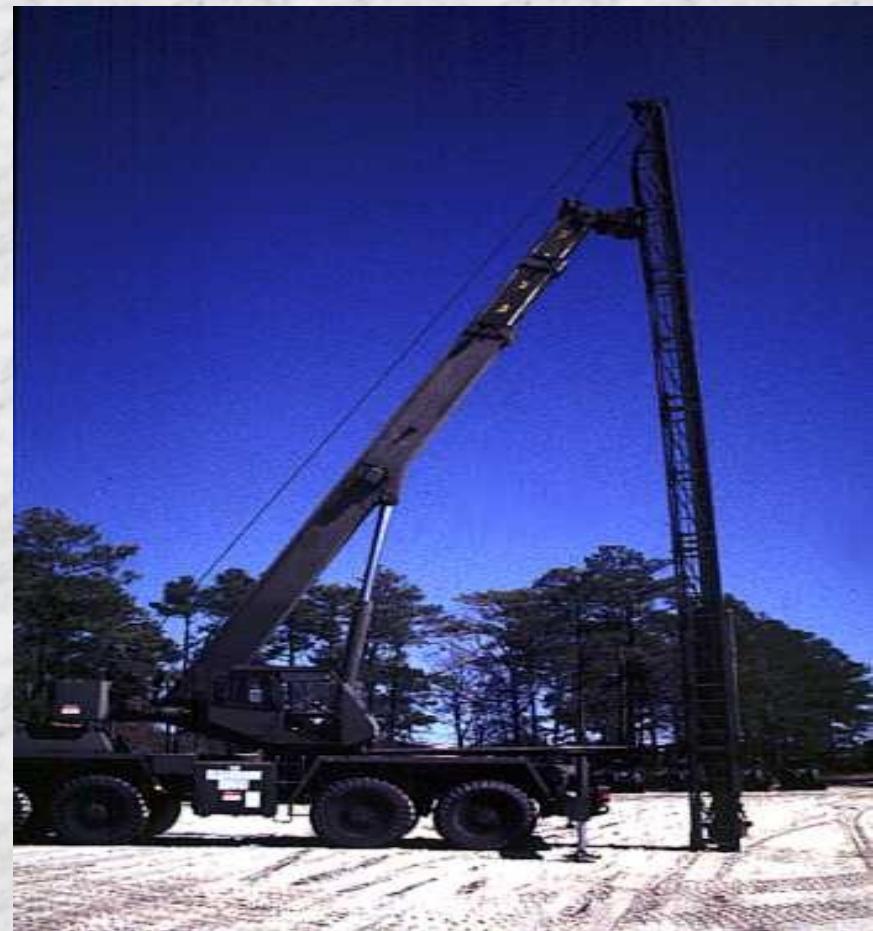


- Refer to load chart for set up
 - Max boom length of 70'
 - Max radius of 55'

HSHMC 25 Ton Pile Driver

■ Pile Driver

- Pile Driver
- Model DA-15B
- 55' of leads



HSHMC 25 Ton Pile Driver



- Bottom lead braces

HSHMC 25 Ton Pile Driver



■ **Pile cap**

HSHMC 25 Ton Pile Driver



- Single acting, self powered hammer.

HSHMC 25 Ton Pile Driver

Hookup Man



The Operator



- Requires 3 man crew

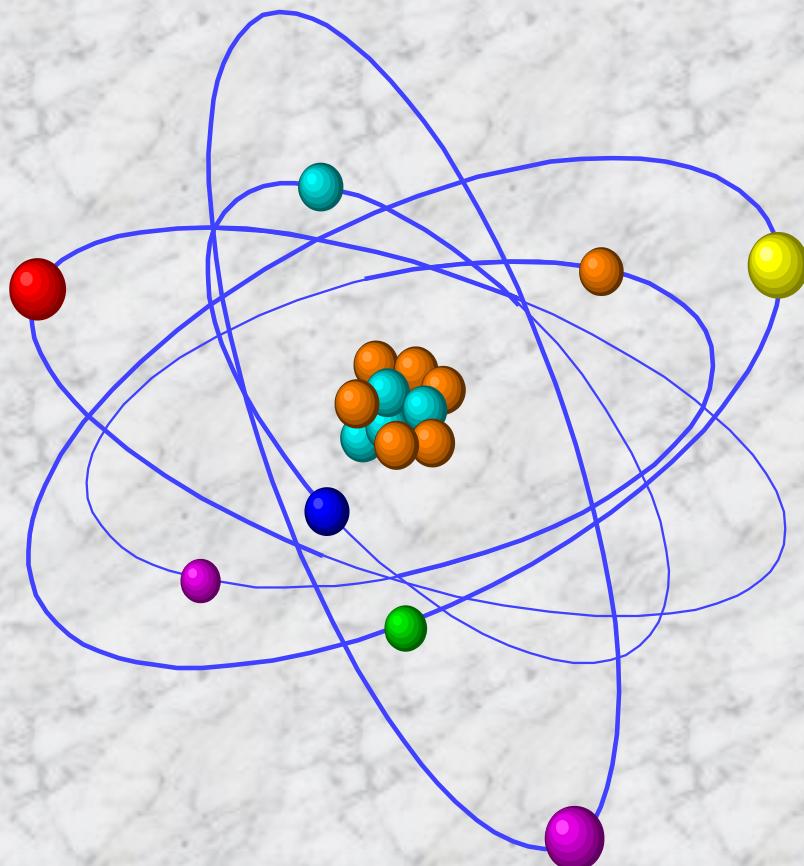
HSHMC 25 Ton Pile Driver



HSHMC 25 Ton Pile Driver

- **Primarily used for driving wooden piles for:**
 - Piers
 - Sea walls
 - Work pits
 - Loading ramps.
- **Capable of driving a 40' pile that will bear 40 tons of pressure at pile refusal.**
- **Pile refusal:**
 - **10 blows** of hammer for every inch pile is driven.

HSHMC 25 Ton Pile Driver

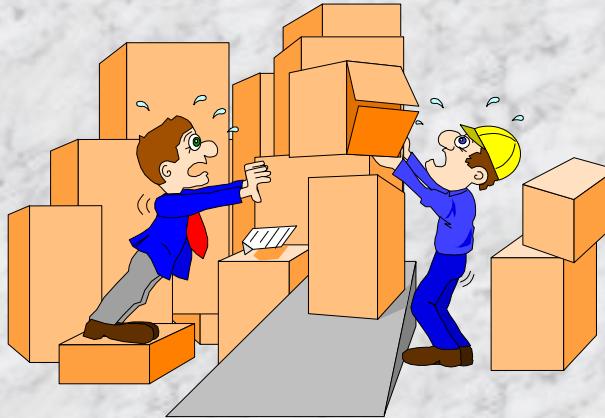


- Energy output of hammer
 - 8,800 foot lbs. at pile refusal

HSHMC 25 Ton Pile Driver

- Extreme care must be taken when driving creosote piles to avoid skin and eye irritation.
- Placed close to the pile group to minimize the amount of time lost due to moving.

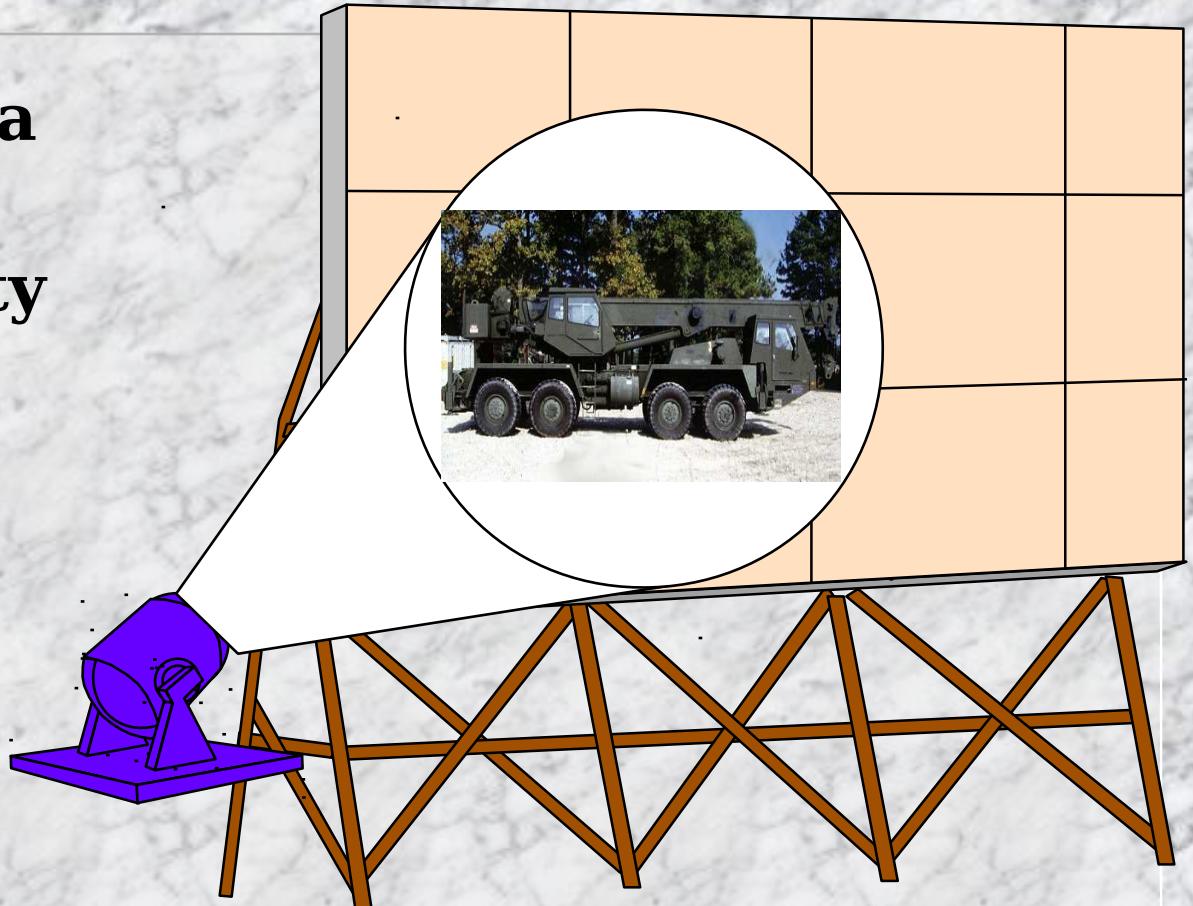
HSHMC 25 Ton Pile Driver



- **Traveling, fully extend and raise outriggers 6"**
- **2 mph max**
- **Drive piles at:**
 - Vertically
 - Left and right angles

HSHMC 25 Ton

- How about a movie?
- Crane Safety



HSHMC 25 Ton



■ Are there any questions?